

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Original): A biochip characterized by comprising a well(s) having, at its bottom, a filter comprising straight pores with a uniform diameter arranged at uniform pore spacings.

Claim 2 (Original): The biochip according to claim 1, characterized in that said filter has a thickness of 1 to 10 μm .

Claim 3 (Currently Amended): The biochip according to claim 1 or 2, characterized in that the open area ratio of the filter is 15 to 60%.

Claim 4 (Currently Amended): The biochip according to ~~claim 1 any one of claims 1 to 3~~, characterized in that the surface of the filter is formed of silica, titania, or alumina.

Claim 5 (Currently Amended): The biochip according to ~~claim 1 any one of claims 1 to 4~~, characterized by comprising a plurality of said wells provided integrally with each other.

Claim 6 (Currently Amended): The biochip according to ~~claim 1 any one of claims 1 to 4~~, characterized in that said well is singularly provided.

Claim 7 (Currently Amended): The biochip according to ~~claim 1 any one of claims 1 to 6~~, characterized in that a reinforcing rib part is provided on the upper side or lower side of said filter in said well.

Claim 8 (Original): The biochip according to claim 7, characterized in that said reinforcing rib part is of an integral type provided with a plurality of through-holes.

Claim 9 (Currently Amended): The biochip according to claim 7 or 8, characterized in that said reinforcing rib part is joined directly to said filter.

Claim 10 (Currently Amended): The biochip according to claim 7 or 8, characterized in that said reinforcing rib part is formed so as to continuously extend from said filter, said reinforcing rib part and said filter being formed of an identical material.

Claim 11 (Currently Amended): The biochip according to claim 1 any one of claims 1 to 10, characterized in that a nonporous part free from pores of said filter is provided on the bottom of said well in a predetermined width from the periphery of said well.

Claim 12 (Currently Amended): The biochip according to claim 1 any one of claims 1 to 11, characterized in that a first filter is provided at the bottom of the well(s) and a second filter is provided on the side opposite to the first filter so that the well(s) is sandwiched between said first and second filters.

Claim 13 (Currently Amended): The biochip according to claim 1 any one of claims 1 to 12, characterized in that a dispersion with probe-supported particles dispersed therein is placed in said well(s).

Claim 14 (Original): The biochip according to claim 13, characterized in that the ratio between the diameter of said particles and the pore diameter of said filter is particle diameter/pore diameter = 1.1 to 2.5, and said particle diameter and said pore spacing satisfy a relationship represented by formula: particle diameter < pore spacing < particle diameter x 10.

Claim 15 (Original): The biochip according to claim 13, characterized in that the diameter of said particle and the pore diameter and pore spacing of said filter satisfy a relationship represented by formula: particle diameter > pore diameter + pore spacing/2.

Claim 16 (Original): The biochip according to claim 13, characterized in that said well contains a dispersion in which probe-supported particles having at least one identification means for providing probe identification information has been dispersed.

Claim 17 (Original): The biochip according to claim 16, characterized in that said identification means is at least one means selected from color, shape, diameter and gene sequence in said probe-supported particle.

Claim 18 (Currently Amended): The biochip according to claim 16 or 17, characterized in that a plurality of probe-supported particles which are identical to each other in probe identification information in all of said identification means are contained in an identical well and said wells are identical to each other in said probe identification information for a plurality of probe-supported particles contained therein.

Claim 19 (Currently Amended): The biochip according to claim 16 or-17, characterized in that a plurality of probe-supported particles which are identical to each other in probe identification information in all of said identification means are contained in an identical well and said wells are different from each other in said probe identification information for a plurality of probe-supported particles contained therein.

Claim 20 (Currently Amended): The biochip according to claim 16 or-17, characterized in that a plurality of probe-supported particles which are different from each other in probe identification information in said at least one identification means are contained in an identical well and said wells are identical to each other in construction of said probe identification information in all the identification means for a plurality of probe-supported particles contained therein.

Claim 21 (Currently Amended): The biochip according to claim 16 or-17, characterized in that a plurality of probe-supported particles which are different from each other in probe identification information in said at least one identification means are contained in an identical well and said wells are different from each other in construction of said probe identification information in at least one of said identification means for a plurality of probe-supported particles contained therein.

Claim 22 (Currently Amended): A biochip kit characterized by comprising: a vessel; and a plurality of wells formed integrally with each other or a single well in the biochip according to ~~any of claims 1 to 21~~ claim 1 housed in or connected to said vessel.

Claim 23 (Original): The biochip kit according to claim 22, characterized in that said vessel is formed integrally with said well(s).

Claim 24 (Original): The biochip kit according to claim 22, characterized in that said vessel is formed independently of said well(s).

Claim 25 (Currently Amended): The biochip kit according to claim 22 any of claims 22 to 24, characterized in that said vessel is provided with well(s) corresponding to said well(s) in said biochip.

Claim 26 (Original): The biochip kit according to claim 25, characterized in that a through-hole is provided at the bottom of said well(s) in said vessel.

Claim 27 (Currently Amended): The biochip kit according to claim 25 or 26, characterized in that said biochip and said vessel are connected to each other so that the corresponding wells are connected to each other.

Claim 28 (Currently Amended): The biochip kit according to claim 22 any of claims 22 to 27, characterized in that said vessel comprises a plurality of plates stacked on top of each other, said plurality of plates being each selected from plates with a through-hole and plates free from a through-hole.

Claim 29 (Currently Amended): A biochip kit characterized by comprising a plurality of biochips according to ~~any of claims 1 to 21~~ claim 1 which are connected to each other so that the corresponding wells are connected to each other.

Claim 30 (Currently Amended): The biochip kit according to ~~claim 22~~ any of claims 22 to 29, characterized in that the flat part provided on the lower end of the well side part in said biochip is connected directly to the flat part provided on the upper end of the well side part in said separate vessel or said separate biochip so that the wells are connected to each other.

Claim 31 (Currently Amended): The biochip kit according to ~~claim 22~~ any of claims 22 to 29, characterized in that either a positioning concave part into which a convex part provided on the upper end of the well side part in said separate vessel or said separate biochip is to be fitted, or a positioning convex part into which a concave part provided on the upper end of the well side part in said separate vessel or said separate biochip is to be fitted is provided on the lower end of the well side part in said biochip.

Claim 32 (Currently Amended): A process for producing a biochip according claim 1 to any of claims 1 to 21, characterized by comprising: providing a plate having a structure of at least two layers different from each other in composition of a material constituting the layer; subjecting said plate to pattern etching from its one side to the boundary between the two layers to form a well hole(s); and subjecting said plate to pattern etching from its other side to the boundary between the two layers to form filter pores, thereby preparing a biochip comprising a well(s) and a filter connected to each other.

Claim 33 (Currently Amended): A process for producing a biochip according to claim 1 ~~any of claims 1 to 21~~, characterized in that silicon wafers are etched to prepare a filter, a rib, and a well which are then stacked on top of each other.

Claim 34 (Currently Amended): A method for operating a biochip kit, characterized in that, in a biochip kit according to ~~any of claims 22 to 31~~ claim 22 comprising said vessel and said biochip, said vessel being provided independently of said well(s) in said biochip, a solution is placed in said vessel and said well(s) in said biochip is vertically moved in said solution to bring said solution in said vessel into contact with said probe-supported particles and/or solution within said well(s).

Claim 35 (Currently Amended): A method for operating a biochip kit, characterized in that the interface of a solution contained in said vessel in a biochip kit according to ~~any of claims 22 to 31~~ claim 22 is vertically moved to bring said solution in said vessel into contact with said probe-supported particles and/or solution within said well(s).

Claim 36 (Currently Amended): A method for operating a biochip kit, characterized in that, in a biochip kit according to ~~any of claims 22 to 31~~ claim 22 comprising said vessel for housing said biochip therein, a pressure differential is created between said vessel and said chip or between mutual wells in said chip to cause contact of a liquid with said probe-supported particle within said well, transfer of a liquid between wells, or both of them.

Claim 37 (Currently Amended): A method for operating a biochip kit, characterized in that, in a biochip kit according to ~~any of claims 22 to 31~~ claim 22 comprising said vessel

connected to said biochip, a pressure differential is created between said vessel and said chip or between mutual wells in said chip to cause contact of a liquid with said probe-supported particles within said well(s), transfer of a liquid between wells, or both of them.

Claim 38 (Currently Amended): The method for operating a biochip kit according to claim 34 any of claims 34 to 37, characterized in that the solution within said vessel is brought into contact with said probe-supported particles and/or solution within said well(s) to perform mixing, diffusion, reaction, separation, or washing of contents within said biochip.

Claim 39 (Currently Amended): The method for operating a biochip kit according to claim 34 any of claims 34 to 38, characterized in that an identical analyte is introduced into each well in said biochip.

Claim 40 (Currently Amended): The method for operating a biochip kit according to any of claims 34 to 38 claim 34, characterized in that analytes introduced into respective wells in said biochip are different from each other.

Claim 41 (Currently Amended): A method for reacting a target contained in an analyte with a probe, characterized by comprising the steps of:

placing specific particles in said wells of said biochip in a kit according to claim 22 any of claims 22 to 31 to constitute a chip according to any of claims 18 to 21;
introducing an analyte-containing solution into said wells in said biochip to bring the system to such a state that said analyte can come into contact with said particles within all the wells; and

vertically moving said wells within said solution contained in the vessel of said biochip, or vertically moving the interface of said solution contained in the vessel of said biochip, or applying a differential pressure to circulate said solution present within or outside said wells to react said target contained in said analyte with said probe.

Claim 42 (Currently Amended): A method for B/F separation of a target from an analyte, characterized by comprising the steps of:

placing specific particles in said wells in said biochip in a kit according to claim 22
~~any of claims 22 to 31 to constitute a chip according to any of claims 18 to 21;~~

introducing an analyte-containing solution into said wells of said biochip to bring the system to such a state that said analyte can come into contact with said particles within all the wells;

lowering the height of the interface of said solution until the position of the interface of said solution is below the lower surface of said filter at the bottom of said well to remove said analyte remaining unreacted with the probe supported on the particle from within each of said wells; and

introducing a washing liquid into said wells in said biochip, circulating said washing liquid through said vessel into said wells in said biochip to introduce said washing liquid into said wells in said biochip and discharge said washing liquid from said wells in said biochip, and discharging said washing liquid from said wells, whereby substances other than the probe-bound target are removed by washing.

Claim 43 (Currently Amended): A method for fractionally isolating a target in an analyte, characterized by comprising the steps of:

placing specific particles in said wells of said biochip in a kit according to claim 30 or
~~31 to constitute a chip according to any of claims 18 to 21;~~

introducing an analyte-containing solution into said wells of said biochip to bring the system to such a state that said analyte can come into contact with said particles within all the wells;

lowering the height of the interface of said solution until the position of the interface of said solution is below the lower surface of said filter at the bottom of said well to remove said analyte remaining unreacted with the probe supported on the particle from within each of said wells;

introducing a washing liquid into said wells in said biochip, circulating said washing liquid through said vessel into said wells in said biochip to introduce said washing liquid into said wells in said biochip and discharge said washing liquid from said wells in said biochip, and discharging said washing liquid from said wells, whereby substances other than the probe-bound target are removed by washing; and

fitting a concave part, a convex part, or a smooth part, provided on the lower end of the well side part of said biochip, and a convex part, a concave part, or a smooth part, corresponding to the concave part, convex part, or smooth part in said biochip, provided on the upper end of said vessel, together, and then introducing a separating agent solution into said wells of said biochip, whereby said target in said analyte is isolated from said particle and is transferred to said wells of said vessel.

Claim 44 (Currently Amended): A method for detecting and identifying an interaction between a target contained in an analyte and a probe, characterized by comprising the steps of:

placing specific particles in said wells of said biochip in a kit according to claim 22

~~any of claims 22 to 31 to constitute a chip according to any of claims 18 to 21;~~

introducing an analyte-containing solution into said wells of said biochip to bring the system to such a state that said analyte can come into contact with said particles within all the wells;

lowering the height of the interface of said solution until the position of the interface of said solution is below the lower surface of said filter at the bottom of said well to remove said analyte remaining unreacted with the probe supported on the particle from within each of said wells;

introducing a washing liquid into said wells in said biochip, circulating said washing liquid through said vessel into said wells in said biochip to introduce said washing liquid into said wells in said biochip and discharge said washing liquid from said wells in said biochip, and discharging said washing liquid from said wells, whereby substances other than the probe-bound target are removed by washing;

positioning said particles within said wells on said pores in said filter; and

detecting and identifying a reaction or an interaction between the probe supported on said particles and the target in said analyte.

Claim 45 (Original): The method for detecting and identifying a target contained in an analyte according to claim 44, characterized in that, for each particle, both probe identification information of said particle and information about a reaction or interaction between said probe supported on said particle and said target contained in said analyte are detected.

Claim 46 (Original): A method for detecting and identifying a target contained in an analyte according to claim 44, characterized in that, for said particles in each well, information about identification of said probe supported on said particles is identified, and the state of an interaction between said probe and said target contained in said analyte is then measured to calculate information about an interaction for each well based on information about the state of interaction for each particle.